

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of
MATTHEW P.J. BAKER ET AL.
Serial No. 10/523,940
Filed: FEBRUARY 8, 2005

Atty. Docket: GB 020134
Group Art Unit: 9430
Examiner: C. ELPENORD
CONF. NO. 9430

TITLE: ARQ SYSTEM WITH STATUS AND PACKET ACKNOWLEDGEMENT

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Appellants herewith respectfully present its Brief on Appeal
as follows:

REAL PARTY IN INTEREST

The real party in interest is Koninklijke Philips Electronics N.V., a corporation of The Netherlands having an office and a place of business at Groenewoudseweg 1, Eindhoven, Netherlands 5621 BA.

RELATED APPEALS AND INTERFERENCES

To the best of Appellants' knowledge and belief, there are no related appeals or interferences.

STATUS OF CLAIMS

Claims 1-25 are pending in this application. Claims 1-25 are rejected in the Final Office Action that issued April 17, 2008. No Amendment After Final Action was submitted. Claims 1-25 are the subject of this appeal.

STATUS OF AMENDMENTS

An amendment was submitted on January 17, 2008 in response to an Office Action of October 30, 2007. No Amendment After Final Action was filed in response to the Final Office Action that issued April 17, 2008. This Appeal Brief is in response to the Final Office Action that rejected claims 1-25.

SUMMARY OF CLAIMED SUBJECT MATTER

It should be explicitly noted that it is not the Appellants' intention that the currently claimed embodiments be limited to operation within the illustrative embodiments described below beyond what is required by the claim language. Further description of the illustrative embodiments are provided indicating portions of the claims which cover the illustrative embodiments merely for compliance with requirements of this appeal without intending any further interpreted limitations be read into the claims as presented.

The present invention, for example as claimed in claim 1, relates to a communication system having a downlink indicator channel (e.g., see, FIG. 1, downlink channel 122 and accompanying description contained on page 6, lines 6-7; and FIG. 5 and downlink indicator channel DL₁) for transmission of an indicator signal (e.g., see, indicator signal I 302) indicating that a data packet (e.g., see, data packet P 202) is scheduled to be transmitted on a downlink data channel (e.g., see, FIG. 5 and downlink data channel DL₂) from a primary station (e.g., see, FIG. 1, primary station base 100) to a secondary station (e.g., see, FIG. 1, secondary station

base MS 110, page 6, lines 27-31 and page 8, lines 10-11). The secondary station (110) includes a receiving means (e.g., see, FIG. 1, transceiver 114) for receiving the indicator signal (302) and the data packet (202), and acknowledgement means (e.g., see, FIG. 1, transceiver 114 and microcontroller 112) for transmitting a signal to the primary station (100) to indicate the status of the received data packet (e.g., see, page 8, lines 11-13). The secondary station (110) includes a means for transmitting (e.g., see, FIG. 1, transceiver 114 and microcontroller 112) on an uplink channel (e.g., see, FIG. 1 and uplink channel 124) a status signal to indicate receipt of the indicator signal before transmission of a positive or negative acknowledgement to indicate the status of the received data packet (e.g., see, page 8, lines 11-16, FIG. 8, and page 11, lines 14-25).

The present invention, for example as claimed in claim 3, relates to a primary station (e.g., see, FIG. 1, primary station base 100) for use in a communication system having a downlink indicator channel (e.g., see, FIG. 1, downlink channel 122 and accompanying description contained on page 6, lines 6-7; and FIG. 5 and downlink indicator channel DL₁) for the transmission of an indicator signal (e.g., see, indicator signal I 302) indicating

that a data packet (e.g., see, data packet P 202) is scheduled to be transmitted on a downlink data channel from the primary station to a secondary station (e.g., see, FIG. 5 and downlink data channel DL₂), wherein means are provided for receiving on an uplink channel (e.g., see, FIG. 1, transceiver 104, microcontroller 102 and uplink channel 124) a status signal from the secondary station (110) to indicate receipt of the indicator signal before reception of a positive or negative acknowledgement to indicate the status of the data packet received by the secondary station (e.g., see, page 8, lines 11-16, FIG. 8, and page 11, lines 14-25).

The present invention, for example as claimed in claim 5, relates to a secondary station (e.g., see, FIG. 1, secondary station base MS 110, page 6, lines 27-31 and page 8, lines 10-11) for use in a communication system having a downlink indicator channel (e.g., see, FIG. 1, downlink channel 122 and accompanying description contained on page 6, lines 6-7; and FIG. 5 and downlink indicator channel DL₁) for the transmission of an indicator signal (e.g., see, indicator signal I 302) indicating that a data packet (e.g., see, data packet P 202) is scheduled to be transmitted on a downlink data channel (e.g., see, FIG. 5 and downlink data channel DL₂) from a primary station (e.g., see, FIG. 1, primary station base

100) to the secondary station (e.g., see, page 6, lines 27-31 and page 8, lines 10-11), wherein receiving means (e.g., see, FIG. 1, transceiver 114) are provided for receiving the indicator signal (302) and the data packet (202), acknowledgement means (e.g., see, FIG. 1, transceiver 114 and microcontroller 112) are provided for transmitting on an uplink channel a signal to the primary station to indicate the status of the received data packet (e.g., see, page 8, lines 11-13), and means are provided for transmitting (e.g., see, FIG. 1, transceiver 114 and microcontroller 112) a status signal to indicate receipt of the indicator signal before transmission of a positive or negative acknowledgement to indicate the status of the received data packet (e.g., see, page 8, lines 11-16, FIG. 8, and page 11, lines 14-25).

The present invention, for example as claimed in claim 14, relates to a method (e.g., see, FIG. 8, and page 11, lines 14-25) of operating a communication system having a downlink indicator channel (e.g., see, FIG. 1, downlink channel 122 and accompanying description contained on page 6, lines 6-7; and FIG. 5 and downlink indicator channel DL₁) for the transmission of an indicator signal (e.g., see, indicator signal I 302) indicating that a data packet (e.g., see, data packet P 202) is scheduled to be transmitted on a

downlink data channel (e.g., see, FIG. 5 and downlink data channel DL₂) from a primary station (e.g., see, FIG. 1, primary station base 100) to a secondary station (e.g., see, FIG. 1, secondary station base MS 110, page 6, lines 27-31 and page 8, lines 10-11). The method includes the secondary station (110) receiving the indicator signal and the data packet (202) (e.g., see, FIG. 8, block 804), and transmitting on an uplink channel a status signal to indicate receipt of the indicator signal (e.g., see, page 8, lines 11-13, FIG. 8, block 806) before transmission of a positive or negative acknowledgement (e.g., see, FIG. 8, block 812) to indicate the status of the received data packet (e.g., see, page 8, lines 11-16, FIG. 8, and page 11, lines 14-25).

The present invention, for example as claimed in claim 15, relates to a communication system (e.g., see, FIG. 1) including a primary station (e.g., see, FIG. 1, primary station base 100) and a secondary station (e.g., see, FIG. 1, secondary station base MS 110, page 6, lines 27-31 and page 8, lines 10-11). The primary station is configured to transmit (e.g., see, FIG. 1, transceiver 104, microcontroller 102 and uplink channel 124) an indicator signal (e.g., see, indicator signal I 302) followed by a data packet (e.g., see, data packet P 202, FIG. 8, blocks 804 and 808)

to the secondary station. In response to reception of the indicator signal and the data packet, the secondary station is configured to transmit (e.g., see, FIG. 1, transceiver 114 and microcontroller 112) a status signal to indicate the reception of the indicator signal before transmission of a positive acknowledgement or a negative acknowledgement to indicate a status of the received data packet (e.g., see, page 8, lines 11-16, FIG. 8, and page 11, lines 14-25).

The present invention, for example as claimed in claim 19, relates to a primary station (e.g., see, FIG. 1, primary station base 100) including a transmitter (e.g., see, FIG. 1, transceiver 104 and downlink channel 122) configured to transmit an indicator signal (e.g., see, indicator signal I 302) followed by a data packet (e.g., see, data packet P 202) to a secondary station (e.g., see, FIG. 5 and downlink data channel DL₂), and a receiver configured to receive (e.g., see, FIG. 1, transceiver 104 and uplink channel 124) a status signal from the secondary station to indicate a reception of the indicator signal (e.g., see, page 8, lines 11-13, FIG. 8, block 806) by the secondary station followed by a reception of a positive acknowledgement or a negative acknowledgement to indicate a status of the data packet received by

the secondary station (e.g., see, FIG. 8, block 812) to indicate the status of the received data packet (e.g., see, page 8, lines 11-16, FIG. 8, and page 11, lines 14-25).

The present invention, for example as claimed in claim 21, relates to a secondary station (e.g., see, FIG. 1, secondary station base MS 110, page 6, lines 27-31 and page 8, lines 10-11) including a receiver (e.g., see, FIG. 1, transceiver 114) configured to receive an indicator signal (302) followed by a data packet (202) from a primary station (e.g., see, FIGS. 1, 5), and a transmitter (e.g., see, FIG. 1, transceiver 114) configured to transmit a status signal to indicate reception of the indicator signal (e.g., see, page 8, lines 11-13) before transmission of a positive acknowledgement or a negative acknowledgement to indicate a status of the received data packet (e.g., see, page 8, lines 11-16, FIG. 8, and page 11, lines 14-25).

The present invention, for example as claimed in claim 24, relates to a method (e.g., see, FIG. 8, and page 11, lines 14-25) of communication between a primary station (e.g., see, FIG. 1, primary station base 100) and a secondary station (e.g., see, FIG. 1, secondary station base MS 110, page 6, lines 27-31 and page 8, lines 10-11) including transmitting by the primary station an

indicator signal (e.g., see, indicator signal I 302) followed by a data packet (e.g., see, data packet P 202) to the secondary station (e.g., see, FIG. 8, block 804). In response to reception of the indicator signal and the data packet, the secondary station transmitting a status signal to indicate the reception of the indicator signal (e.g., see, page 8, lines 11-13, FIG. 8, block 806) before transmission of a positive acknowledgement or a negative acknowledgement to indicate a status of the received data packet (e.g., see, FIG. 8, block 812) to indicate the status of the received data packet (e.g., see, page 8, lines 11-16, FIG. 8, and page 11, lines 14-25).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-6, 13-14, 15-17, 19-22 and 24-25 of U.S. Patent Application Serial No. 10/523,940 are obvious under 35 U.S.C. §103(a) over U.S. Patent Publication No. 2003/0063583 to Padovani ("Padovani") in view of U.S. Patent No. 5,633,874 to Diachina ("Diachina").

Whether claim 7 of U.S. Patent Application Serial No. 10/523,940 is obvious under 35 U.S.C. §103(a) over Padovani in view of Diachina in further view of U.S. Patent No. 5,933,763 to Wang ("Wang").

Whether claim 8 of U.S. Patent Application Serial No. 10/523,940 is obvious under 35 U.S.C. §103(a) over Padovani in view of Diachina in further view of U.S. Patent No. 6,320,855 to Shi ("Shi").

Whether claims 9 and 11 of U.S. Patent Application Serial No. 10/523,940 are obvious under 35 U.S.C. §103(a) over Padovani in view of Diachina in further view of Shi in still further view of U.S. Patent No. 6,434,396 to Rune ("Rune").

Whether claims 18 and 23 of U.S. Patent Application Serial No. 10/523,940 are obvious under 35 U.S.C. §103(a) over Padovani in

view of Diachina in further view of Shi in still further view of Rune.

Whether claims 10 and 12 of U.S. Patent Application Serial No. 10/523,940 are obvious under 35 U.S.C. §103(a) over Padovani in view of Diachina in further view of Shi in still further view of U.S. Patent Publication No. 2002/0064167 to Khan ("Khan").

ARGUMENT

Claims 1-6, 13-14, 15-17, 19-22 and 24-25 are said to be obvious over Padovani in view of Diachina.

Appellants respectfully request the Board to address the patentability of independent claims 1, 3, 5, 14, 15, 19, 21 and 24, and further claims 2, 4, 6, 13, 16, 17, 20, 22, and 25 as respectively depending from one of independent claims 1, 3, 5, 14, 15, 19, 21 and 24, based on the requirements of independent claims 1, 3, 5, 14, 15, 19, 21 and 24. This position is provided for the specific and stated purpose of simplifying the current issues on appeal. However, Appellants herein specifically reserve the right to argue and address the patentability of claims 2, 4, 6, 13, 16, 17, 20, 22, and 25 at a later date should the separately patentable subject matter of claims 2, 4, 6, 13, 16, 17, 20, 22, and 25 later become an issue. Accordingly, this limitation of the subject matter presented for appeal herein, specifically limited to discussions of the patentability of independent claims 1, 3, 5, 14, 15, 19, 21 and 24 is not intended as a waiver of Appellants' right

to argue the patentability of the further claims and claim elements at that later time.

While it is alleged that Padovani discloses almost all the subject matter of the claimed invention, a point disputed by the Appellants, however, it is undisputed that Padovani fails to disclose "transmitting a status signal to indicate receipt of the indicator signal before transmission of a positive or negative acknowledgement to indicate the status of the received data packet ...". (See, Final Office Action, page 8, first full paragraph.)

It must be pointed out, that as substantially recited in each of the currently pending claims, an (emphasis added) "indicator signal followed by a data packet to a secondary station, and a receiver configured to receive a status signal from the secondary station to indicate a reception of the indicator signal by the secondary station followed by a reception of a positive acknowledgement or a negative acknowledgement to indicate a status of the data packet received by the secondary station" as for example recited in claim 19. Accordingly, the claims as provided do not merely provide for sending a positive acknowledgement or negative acknowledgement of any data packet. The claims recite that the positive acknowledgement or negative acknowledgement is of

a data packet transmitted after the indicator signal (e.g., see, FIG. 8 and description above regarding the present patent application).

The Final Office Action relies on Diachina for supplying this feature however, it is respectfully submitted that reliance on Diachina is misplaced. Diachina is quite clear that (emphasis added, see, Diachina, Col. 4, lines 2-11, cited in Final Office Action)

First, a status request is sent to the mobile station from a base station. A status report is then sent to the base station... The mobile station then transmits a bit map to the communication system to indicate which frames have been correctly received by the mobile station at the point in time when it received the status request.

As made perfectly clear from Diachina, the bit map transmitted from the mobile station to the base station of Diachina indicates the status of frames at the point of receipt of the status request. Accordingly, the bit map of Diachina does not indicate the status of a data packet transmitted after the status request.

It is respectfully submitted that the secondary station of claim 21 is not anticipated or made obvious by the teachings of Padovani in view of Diachina. For example, Padovani in view of

Diachina does not disclose or suggest, a secondary station that amongst other patentable elements, comprises (illustrative emphasis added) "a receiver configured to receive an indicator signal followed by a data packet from a primary station; and a transmitter configured to transmit a status signal to indicate reception of the indicator signal before transmission of a positive acknowledgement or a negative acknowledgement to indicate a status of the received data packet" as recited in claim 21, and as similarly recited in each of claims 1, 3, 5, 14, 15, 19 and 24. Clearly, Padovani does not address this limitation and Diachina shows a bit map indicating the status of frames at the point of receipt of the status request and not a status of a data packet received after the status request.

Based on the foregoing, the Appellants respectfully submit that independent claims 1, 3, 5, 14, 15, 19, 21 and 24 are patentable over Padovani in view of Diachina and notice to this effect is earnestly solicited.

Claims 2, 4, 6, 13, 16, 17, 20, 22, and 25 respectively depend from one of claims 1, 3, 5, 14, 15, 19, 21 and 24 and accordingly are allowable for at least this reason as well as for the separately patentable elements contained in each of said claims.

Accordingly, separate consideration of each of the dependent claims is respectfully requested.

Claim 7 is said to be unpatentable over Padovani in view of Diachina in further view of Wang.

Wan is cited for allegedly showing elements of the dependent claim yet does not cure the deficiencies in each of Padovani and Diachina. Claim 7 is allowable at least based on its dependence from independent claim 5.

Claim 8 is said to be unpatentable over Padovani in view of Diachina in further view of Shi.

Shi is cited for allegedly showing elements of the dependent claim yet does not cure the deficiencies in each of Padovani and Diachina. Claim 8 is allowable at least based on its dependence from independent claim 5.

Claims 9 and 11 are said to be unpatentable over Padovani in view of Diachina in further view of Shi in still further view of Rune.

Shi and Rune are cited for allegedly showing elements of the dependent claims yet do not cure the deficiencies in each of Padovani and Diachina. Claims 9 and 11 are allowable at least based on dependence from independent claim 5.

Claims 10 and 12 are said to be unpatentable over Padovani in view of Diachina in further view of Shi in still further view of Khan.

Shi and Khan are cited for allegedly showing elements of the dependent claims yet do not cure the deficiencies in each of Padovani and Diachina. Claims 10 and 12 are allowable at least based on dependence from independent claim 5.

In addition, Appellants deny any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the


presented remarks. However, the Appellants reserve the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.

CONCLUSION

Claims 1-25 are patentable over any of Padovani in view of Diachina alone and in any combination of Wang, Shi, Rune and Khan.

Thus the Examiner's rejection of claims 1-25 should be reversed.

Respectfully submitted,

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APPENDIX A

CLAIMS ON APPEAL

1. A communication system having a downlink indicator channel for transmission of an indicator signal indicating that a data packet is scheduled to be transmitted on a downlink data channel from a primary station to a secondary station, the secondary station having receiving means for receiving the indicator signal and the data packet, and acknowledgement means for transmitting a signal to the primary station to indicate the status of the received data packet, wherein the secondary station comprises means for transmitting on an uplink channel a status signal to indicate receipt of the indicator signal before transmission of a positive or negative acknowledgement to indicate the status of the received data packet.
2. The system as claimed in claim 1, wherein the status signal is the same signal as that used for a negative acknowledgement.
3. A primary station for use in a communication system having a downlink indicator channel for the transmission of an indicator signal indicating that a data packet is scheduled to be transmitted

on a downlink data channel from the primary station to a secondary station, wherein means are provided for receiving on an uplink channel a status signal from the secondary station to indicate receipt of the indicator signal before reception of a positive or negative acknowledgement to indicate the status of the data packet received by the secondary station.

4. The primary station as claimed in claim 3, wherein the status signal is the same signal as that used for a negative acknowledgement.

5. A secondary station for use in a communication system having a downlink indicator channel for the transmission of an indicator signal indicating that a data packet is scheduled to be transmitted on a downlink data channel from a primary station to the secondary station, wherein receiving means are provided for receiving the indicator signal and the data packet, acknowledgement means are provided for transmitting on an uplink channel a signal to the primary station to indicate the status of the received data packet, and means are provided for transmitting a status signal to indicate receipt of the indicator signal before transmission of a positive

or negative acknowledgement to indicate the status of the received data packet.

6. The secondary station as claimed in claim 5, wherein the status signal is the same signal as that used for a negative acknowledgement.

7. The secondary station as claimed in claim 5, wherein the status signal is transmitted at the same power as a positive acknowledgement.

8. A secondary station as claimed in claim 5, further comprising means for resetting a timer on receipt of the indicator signal and for modifying a characteristic of uplink transmissions until the timer expires.

9. The secondary station as claimed in claim 8, further comprising means for transmitting negative acknowledgements for each time at which a data packet could have been transmitted if no transmission of a data packet is detected, and wherein the

negative acknowledgements are only transmitted until the timer expires.

10. The secondary station as claimed in claim 8 wherein the timer has a duration of one sub-frame.

11. The secondary station as claimed in claim 9, further comprising means for transmitting a positive or negative acknowledgement of a received data packet N times, where N is predetermined, and for transmitting subsequent negative acknowledgements until the timer expires.

12. The secondary station as claimed in claim 11, wherein the timer has a duration of N sub-frames.

13. The secondary station as claimed in claim 5, further comprising means for transmitting a plurality of status signals before transmission of the acknowledgement.

14. A method of operating a communication system having a downlink indicator channel for the transmission of an indicator signal

indicating that a data packet is scheduled to be transmitted on a downlink data channel from a primary station to a secondary station, the method comprising the secondary station receiving the indicator signal and the data packet, and transmitting on an uplink channel a status signal to indicate receipt of the indicator signal before transmission of a positive or negative acknowledgement to indicate the status of the received data packet.

15. A communication system comprising:

a primary station; and

a secondary station;

wherein the primary station is configured to transmit an indicator signal followed by a data packet to the secondary station, and

in response to reception of the indicator signal and the data packet, the secondary station being configured to transmit a status signal to indicate the reception of the indicator signal before transmission of a positive acknowledgement or a negative acknowledgement to indicate a status of the received data packet.

16. The communication system of claim 15, wherein the status signal is a same signal as the negative acknowledgement.

17. The communication system of claim 15, wherein the primary station has two chances to detect a case where the secondary station fails to detect the indicator signal or the data packet so that a power requirement of an uplink channel from the secondary station to the primary station is reduced.

18. The communication system of claim 15, wherein the secondary station further comprises a timer configured to be reset on receipt of the indicator signal, and wherein the secondary station is further configured to transmit negative acknowledgements for each time a data packet could have been transmitted if no transmission of a data packet is detected, and the negative acknowledgements being only transmitted until the timer expires.

19. A primary station comprising:

a transmitter configured to transmit an indicator signal followed by a data packet to a secondary station, and

a receiver configured to receive a status signal from the secondary station to indicate a reception of the indicator signal by the secondary station followed by a reception of a positive acknowledgement or a negative acknowledgement to indicate a status of the data packet received by the secondary station.

20. The primary station of claim 19, wherein the status signal is a same signal as the negative acknowledgement.

21. A secondary station comprising:

a receiver configured to receive an indicator signal followed by a data packet from a primary station; and

a transmitter configured to transmit a status signal to indicate reception of the indicator signal before transmission of a positive acknowledgement or a negative acknowledgement to indicate a status of the received data packet.

22. The secondary station of claim 21, wherein the status signal is a same signal as the negative acknowledgement.

23. The secondary station of claim 21, further comprising a timer configured to be reset on receipt of the indicator signal, and wherein the secondary station is further configured to transmit negative acknowledgements for each time a data packet could have been transmitted if no transmission of a data packet is detected, and the negative acknowledgements being only transmitted until the timer expires.

24. A method of communication between a primary station and a secondary station comprising the acts of:

transmitting by the primary station an indicator signal followed by a data packet to the secondary station; and

in response to reception of the indicator signal and the data packet, the secondary station transmitting a status signal to indicate the reception of the indicator signal before transmission of a positive acknowledgement or a negative acknowledgement to indicate a status of the received data packet.

25. The method of claim 24, wherein the status signal is a same signal as the negative acknowledgement.

APPENDIX B

Evidence on Appeal

None

APPENDIX C

Related Proceedings of Appeal

None